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STAFF MEMORANDUM

To: THE COMMISSION

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DOCKET CONTROL**ORIGINAL**From: Brian Lehman
Railroad Supervisor
Safety Division

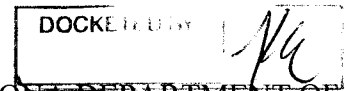
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Arizona Corporation Commission

DOCKETED

OCT 04 2016

Date: October 4, 2016



RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE AN EXISTING AT-GRADE CROSSING OF THE COPPER BASIN RAILROAD AT STATE ROUTE 177 AT APPROXIMATELY MILE POST 152.2, NEAR KELVIN, PINAL COUNTY, ARIZONA, USDOT NO. 874-879-B.

DOCKET NO. RR-02636A-16-0286

Background

On August 19, 2016, the Arizona Department of Transportation ("ADOT") filed with the Arizona Corporation Commission ("Commission") a request for approval for ADOT to upgrade an existing at-grade crossing of the Copper Basin Railroad ("Railroad") at State Route 177 at approximately mile post 152.2, near Kelvin ("Kelvin"), Pinal County, Arizona, at USDOT No. 874-879-B.

The Safety Division's Railroad Safety Section ("Staff"), ADOT and the Railroad participated in several diagnostic review meetings of the proposed improvements to this crossing. All parties present were in agreement to the proposed improvements at the crossing. The following is a breakdown of the crossing in this application, including information about the crossing that was provided to Staff by ADOT.

Federal Highway Administration ("FHWA") Section 130

This project is federally funded pursuant to 23 U.S.C. § 130 ("Section 130"). The purpose of Section 130 is to comply with legislation seeking to eliminate hazards to pedestrians and highway vehicles at public railway-highway crossings. Only crossings which are located on public roads, and which are not primarily for the benefit of the railroad, are eligible for Section 130 funding. In order to be eligible for Section 130 funding, a crossing must be designated on the Commission's Annual Crossing Array as being a priority to receive safety upgrades. Arizona Revised Statute § 40-337.03 states that:

[T]he commission shall submit to the railroad involved and the city, county and department of transportation in which jurisdiction a public railroad grade crossing is located, an array of such crossings where the installation of automatic warning signals or devices should be considered during the year, or within a reasonable time thereafter depending upon the availability of monies, materials, labor and other factors involved in such installation.

This project was approved for Section 130 funding as part of the 2013 Commission Annual Array approved by Decision No. 74393, dated March 19, 2014. After designation on the Annual Array, FHWA issues authorizations for design and construction of each project, reimburses ADOT for the cost and conducts a final inspection of each project. The Railroad will invoice ADOT for 100% of the cost of the project.

SR 177

In this area, SR 177 skirts around Kelvin, an unincorporated community with 75-80 dwellings. SR 177 is used for two-way traffic, consisting of one thru northbound lane, and one thru southbound lane. This crossing consists of one mainline track with daily usage. It is equipped with flashing lights, bells, and gates on the outside edge of the curb. The proposed project consists of the Railroad installing upgraded gate/flasher units with bells on the outside edges of the road. Two new cantilevers will be installed, one for southbound traffic and one for northbound traffic. A new concrete surface will be installed replacing the existing asphalt. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the State. The Railroad will maintain the warning devices and crossing surface after the upgrades are completed. The total cost for the project is \$530,323.

Traffic data for SR 177 was provided to ADOT by the Central Arizona Governments ("CAG"). Per CAG, in 2015, there were 2,018 vehicles per day ("vpd") at this crossing. No Level of Service ("LOS") was given for this crossing.

The American Association of State Highway and Transportation Officials ("AASHTO") Geometric Design of Highways and Streets, 2004, states that the Level of Service characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be.

The posted speed limit on SR 177 is 45 mph. Staff records, as well as the Federal Railroad Administration's ("FRA") accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are: two at-grade crossings about 1 mile south of the project, 874-878-U and 742-396-E. Neither of these crossings offer drivers an alternative for north or south travel along SR 177. There will be a temporary detour west of the crossing built during construction of this project. The detour will allow northbound and southbound vehicles to cross the tracks.

Train Data

Data provided by ADOT, through the FRA website, regarding train movements through this crossing are as follows:

Train Count: 10 trains per day

Maximum Train Speed: 10-15 mph

Thru Freight/Switching Moves: there are no switching movements through this crossing

Schools and Bus Routes

The following are schools near this crossing:

- Ray Pre-School 177 Arizona, Kearny, AZ
- Ray Jr/Sr High School 701 N Highway 177, Kearny, AZ
- Ray Primary School 651 Sen Chastain Dr, Kearny, AZ

Per the Ray Unified School District, there are 6 school bus crossings per day at this crossing.

Hospitals

ADOT gave the following response about hospitals and emergency services vehicles:

C V Superior Clinic, 1134 W US Highway 60, Superior, AZ
Cobre Valley Regional Medical Center, 5880 S Hospital Dr. Globe, AZ

Hazardous Materials

ADOT gave the following response when asked about vehicles transporting hazardous materials through this crossing:

ADOT does not have any specific information pertaining to the use of this crossing by vehicles carrying hazardous materials.

Zoning

Staff requested information from ADOT regarding the type of zoning in adjacent areas from this crossing. The following was the response given:

The Pinal County Comprehensive Plan 2015 has the area around this crossing zoned as Major Open Space.

FHWA Guidelines Regarding Grade Separation

The FHWA Railroad-Highway Grade Crossing Handbook (Revised Second Edition August 2007) provides nine criteria for determining whether highway-rail crossings should be considered for grade separation or otherwise eliminated across the railroad right of way. The Crossing Handbook indicates that grade separation or crossing elimination should be considered whenever one or more of the nine conditions are met. The nine criteria are applied to this crossing application as follows:

		SR 177
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Crossing exposure (trains/day x AADT) exceeds 1M in urban or 250k in rural; or passenger train crossing exposure exceeds 800k in urban or 200k in rural	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Expected accident frequency for active devices with gates, as calculated by the US DOT Accident Prediction Formula including five-year accident history, exceeds 0.5	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No

Grade Separation

ADOT gave the following response about grade separation:

Grade separation was not considered by ADOT as part of this Section 130 safety upgrade because the crossing does not meet any of the criteria outlined in the FHWA-Grade Separation Guidelines. Cost estimates for grade separating this location would be in the \$30,000,000 range, due to the urbanized location.

Vehicular Delays at Crossings

ADOT has no information or complaints regarding delays however the delay at the crossing is really a function of the average length of the train and the average speed that it is traveling.

For example, that a 7,000 foot train traveling 30 miles per hour result in 160 seconds or a little over 2.5 minutes delay.

Another commonly used measure outlined in the FHWA Guidelines; is the so-called Crossing Exposure Index (which is simply the product of the number of trains per day multiplied by the number of vehicles crossing daily) is not currently met at this crossing. The current crossing exposure is 20,180 at SR 177, far below the 250,000 threshold for rural areas. It should be noted that the criteria, identified in the FHWA material are not mandates, but guidelines established by the FHWA, which serve to alert those having jurisdiction that potential problems may arise.

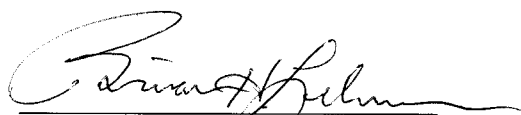
Staff has utilized the FHWA Guidelines to determine the potential need for grade separation at this crossing. Based on existing conditions, SR177 meets none of the nine criteria for consideration of grade separation. Staff does not recommend a grade separation at the crossing.

Crossing Closure

ADOT has stated, they would not like to close this crossing. Doing so would negatively impact numerous residents in the area. In addition, closing the crossing would close off traffic between Hayden and Superior on SR 177, causing a major traffic problem.

Staff Conclusions

Having reviewed all applicable data, Staff supports ADOT's application. Staff believes that the upgrades are in the public's interest and are reasonable. Staff believes that the measures proposed by ADOT are consistent with other similar at-grade crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of ADOT's application.



Brian H. Lehman
Railroad Safety Supervisor
Safety Division

Originator: BHL

1 On this 4th day of October, 2016, the foregoing document was filed with Docket Control as a
2 Staff Report, and copies of the foregoing were mailed on behalf of the Safety Division to the
3 following who have not consented to email service. On this date or as soon as possible thereafter, the
Commission's eDocket program will automatically email a link to the foregoing to the following who
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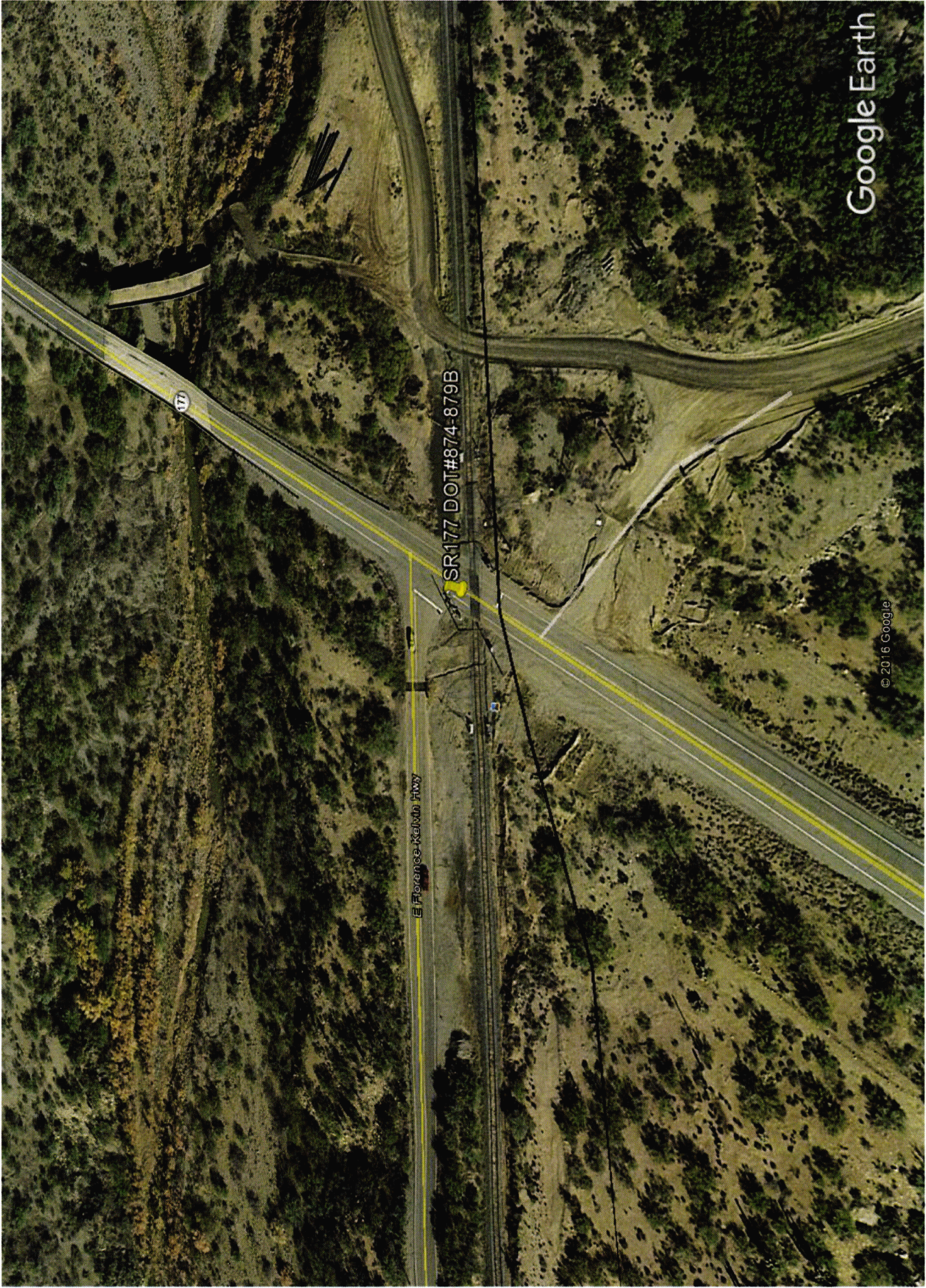
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